EFCOG/DOE CHEMICAL MANAGEMENT 2002WORKSHOP
HIGHLIGHTS and SUMMARY REPORT
[1/27 /02]

The Chemical Safety Topical Committee (CSTC) held its 5th Annual DOE/Energy Facility Contractors Group's (EFCOG) Joint Chemical Management 2002 Workshop in Washington, D.C., on November 5 - 7, 2002. The EFCOG's Safety Analysis Working Group and the DOE Office of Worker Safety and Health, EH-5, co-sponsored the workshop. The workshop was held in the Forrestal building main auditorium and video-conferencing links to sites across the complex were provided to permit remote participation.

This year's theme, "Chemical Hazards Assessment and Control: Examining and Enhancing Safety and Preparedness," emphasized the prevention of chemical-related incidents at DOE. The Workshop focused on risk assessment, risk management, the enhancement of safety and preparedness and the selection of CSTC projects as a path forward to chemical safety management excellence for 2003. The goal of the workshop was to explore ways in which enhanced chemical security, safety and preparedness can be better integrated into sites' overall chemical management programs in the context of Integrated Safety Management (ISM), recognizing that even successful programs need management attention to remain effective and reach the next level of excellence.

A government-industry round table discussion by representatives from the U.S. Environmental Protection Agency (EPA), the U.S. Chemical Safety and Hazard Investigation Board (CSB), the National Nuclear Security Administration (NNSA), DOE's Office of Emergency Management, the American Chemistry Council (ACC) and the Synthetic Organic Chemical Manufacturers Association (SOCMA) explored means of enhancing chemical security in today's climate of heightened concern.

More than 150 participants attended the workshop, either in person or by telecast from sites across the Complex. Participants included DOE contractors and line managers responsible for chemical safety, safety and health professionals and representatives from DOE Operations and Field Offices, facility engineers and others with an interest in chemical safety. Beverly A. Cook, DOE Assistant Secretary for Environment, Safety and Health (EH-1), provided the DOE Corporate welcome, and Robie Enge, Associate Lab Director for PNNL and EFCOG Director provided the EFCOG Sponsor's Corporate welcome. Dr. John E. Mansfied, Member, Defense Nuclear Facilities Safety Board, spoke about the importance of line management support for the proactive management of chemicals, the sharing of lessons learned and successes, and the better integration of chemical with nuclear hazards analysis so that each can enhance the other. He encouraged the expansion of mutual assistance among the DOE Headquarters, field elements and contractor organizations in their efforts to achieve excellence in chemical management programs across DOE as a part of the CSTC.

During the three days of presentations and training, 21 speakers and panelists from the DOE, EFCOG and the private sector offered insight into managing toxic chemicals in industrial and research settings with a focus on risk assessment, risk management and the enhancement of safety and preparedness. With speakers presenting methodologies and tools for managing chemical hazards, program accomplishments, best practices, lessons learned and the challenges faced by line managers, subject matter professionals and workers involved in chemical program implementation, participants received

a better understanding of chemical hazards control and risk management and the development and use of risk profiles and vulnerability assessment tools.

Attendees discussed relevant issues, identified and addressed their common chemical safety needs and concerns, shared their experiences and achievements over the past year and formulated future plans and CSTC projects for the coming year. During open workshop discussion, six CSTC projects were identified for work in 2003 by teams of volunteers led by team-selected chairpersons. Participation in any of these projects is encouraged, requiring only that the volunteer have a role in some aspect of the management, implementation and/or oversight of chemical safety programs at a DOE facility or laboratory or an interest in DOE chemical activities.

The workshop also featured reports on CSTC project accomplishments for 2002. Two of the 2002 projects that are being continued for 2003 are nearing completion. Publication of the "DOE Guide on Integration of Multiple Hazard Analysis Requirements" is anticipated in a few months. Publication of the Consolidated Chemical User Safety and Health Requirements Roadmap is expected by the end of FY 2003 as Volume 3 of the CSTC's "DOE Handbook on Chemical Management" [DOE-HDBK-1139/1-2000].

All plenary sessions of the Workshop were videotaped and are available for viewing by interested parties on request to Bill.McArthur@eh.doe.gov.

WORKSHOP SUMMARY

Tuesday, November 5th

Plenary Session: ***Risk Assessment and Chemical Hazards Control – Government and Industry Perspectives***

C. Rick Jones, Acting Deputy Assistant Secretary for the Office of Safety and Health (EH-5), and the 2002 co-chairs of the CSTC, **JC Laul** of the Los Alamos National Laboratory and Chair of the Chemical Safety Subgroup of the EFCOG Safety Analysis Working Group and **Bill McArthur,** Team Leader of the DOE EH-52 Headquarters Office of Worker Protection Policy and Programs' Health and Safety Policy Team opened the workshop.

Beverly A. Cook, DOE Assistant Secretary for Environment, Safety and Health (EH-1), gave the DOE Corporate welcome, and **Robie Enge**, Associate Lab Director for PNNL and EFCOG Director provided the EFCOG Sponsor's Corporate welcome. Assistant Secretary Cook noted that chemical management at DOE has come a long way in the last few years – rising from virtual non-recognition to a heightened level of awareness in a traditionally nuclear focused arena. DOE and DOE contractors must work together to exchange knowledge across the complex and with industry to leverage information and experience and save time and money. She said that DOE and contractors have a wealth of capability and must team together to define expectations that fit the hazards, document and share model programs and bridge with each other and with the chemical industry. Dr. Enge emphasized the importance of proactive chemical management and the need for workers to be fully equipped with the proper training and complete knowledge of the hazards of their work from start to finish, noting that the sharing of lessons learned and successes is critical to effective chemical management. **Dr. John E.**

Mansfield, Member, Defense Nuclear Facilities Safety Board (DNFSB), spoke about the importance of line management support for proactive chemical management, noting that more line managers must participate in CSTC workshops. He emphasized the need for sites to share lessons learned and successes, and the importance of the integration of chemical with nuclear hazards analysis so that each can enhance the other. He commended the CSTC, noting that since its inception it has had a positive influence on chemical management, with the publication of fine products that provide major value to the DOE complex. He commented on the benefits of having the participation of the U.S. Chemical Safety and Hazard Investigation Board (CSB) and the Center for Chemical Process Safety (CCPS) in CSTC workshops and the importance of actively seeking industry and DOE contractor perspectives on chemical issues of common concern. All three opening session speakers agreed that mutual assistance among Headquarters, field and contractor organizations is a critical element in ensuring chemical safety management excellence throughout the DOE and recognized the key role of the CSTC in accomplishing this.

Government and industry perspectives on chemical hazards assessment and control were examined by opening session speakers. They discussed upcoming Federal and industry guidance for analyzing and assessing risk and catastrophic emergency preparedness and chemical security enhancement in the context of Integrated Safety Management (ISM) principles and the need for heightened awareness of the threat of terrorism as a new risk for consideration.

Craig Mattheissen of the Environmental Protection Agency (EPA) spoke about the connection of process safety and the need to include the threat of terrorism as a risk for consideration when implementing EPA's Risk Management Program requirements. He provided an overview of EPA's new role in the area of homeland security with an eye to bringing safety, security and process safety together. EPA has been working with others, including the Center for Chemical Process Safety (CCPS), the Department of Justice and Sandia National Laboratory to bring security and process safety experts together to look at where the real threats are and what the outcomes might be of deterrence, detection and prevention. Regarding Community Right-to-Know, there is great value in dialog and since terrorists already know most of what would be released to communities, it's best to inform communities so that they know how to respond.

Don Holmstrom, lead Recommendations Specialist for the U.S. Chemical Safety and Hazard Investigation Board (CSB) discussed the recent CSB recommendations for the reduction of the number of uncontrolled chemical reactions resulting in serious industrial accidents. He reviewed a CSB study of serious chemical accidents in the US in which uncontrolled chemical reactions caused 108 deaths and hundreds of millions of dollars in property damage involved chemicals that are now exempt from OSHA and EPA process safety rules. Dr. Holmstrom provided an overview of the CSB's recent investigations and the Board's recommendations to the Occupational Safety and Health Administration (OSHA) and the EPA that they issue new mandatory safety standards for reactive chemicals not now covered by their regulations.

Deborah Monette, Assistant Manager for National Security at DOE-NV/National Nuclear Security Administration (NNSA) spoke on NNSA's development of Integrated Safeguards and Security Management (ISSM) as a means of enhancing chemical security via an expansion of ISM to include security issues. She gave an overview of the principles of ISSM and its role in meeting DOE security

requirements and in improving the effectiveness of security at all levels as an integral part of daily work practices at DOE.

James Fairobent, Acting Director of DOE-HQ Office of Emergency Management traced the history and origins of the DOE Comprehensive Emergency Management System and its basis in hazards analysis. He spoke about the upcoming changes to DOE Order 151.1B on Emergency Management Programs and discussed the need for accurate chemical inventory information for use by emergency responders, the potential for adverse affects of chemical releases at levels below the currently used threshold quantities and ways in which the chemical safety community can help improve emergency management programs across the Complex.

Industry perspectives on examining and enhancing chemical safety and preparedness in the context of hazards assessment and control were discussed by speakers from the CSB, the American Chemistry Council (ACC), the CCPS, the Synthetic Organic Chemical Manufacturers Association (SOCMA) and private industry corporations, with several papers on vulnerability assessment and approaches to the integration of enhanced security measures into daily work.

Dorothy Kellogg, of the ACC described the new chemical industry guidelines to increase security at chemical manufacturing facilities and for materials in transit. She discussed the dramatically increased investment the industry has made in site, distribution and cyber security and its adoption of a new Responsible Care® Security Code. Ms. Kellogg described some of the new requirements imposed by the Code, with special emphasis on site prioritization, security vulnerability assessment and third-party verification.

Tracy Whipple, of the Houston-based branch of the consulting company, Det Norske Veritas, discussed the American Petroleum Institute's Storage Tank Task Force project to develop a risk assessment system for aboveground storage tank (AST) facilities. The system includes a series of generic failure frequencies that are modified using site-specific data including environmental conditions, corrosion mechanisms and management systems, with the consequences of a spill measured in terms of the cost to clean up a liquid release. The overall objective of the approach is to complete a practical risk assessment process applicable to AST facilities to assist in the selection of control measures to prevent liquid releases. To satisfy this objective, both a quantitative scoring system and a risk matrix were developed to estimate and display risks and to assist the user in selecting control measures. The system may help operators select an appropriate method for preventing and controlling releases.

James Cooper, of SOCMA, which represents the specialty-batch chemistry sector of the U.S. chemical industry, spoke about a methodology they developed to analyze variable-risk chemical facilities. He noted that the foundation upon which a comprehensive security program is built begins with a security vulnerability analysis (SVA), which allows for risk-based decision-making. While traditional security approaches often assume a fixed risk at a given site, many chemical facilities may use or store a variety of chemicals in different quantities at different times. This introduces the concept of variable risk in the SVA process and the new area of analysis, called attractiveness, into chemical site SVA methodologies. The focal point in the variable risk approach to the SVA is identifying what factors or features may impact the likelihood that a particular facility may be

selected as a target for terrorist activity, thus maximizing the opportunity to deter, detect, delay and respond to a would-be adversary.

A government-industry round table discussion by representatives from the EPA, CSB, NNSA, DOE's Office of Emergency Management, the ACC and SOCMA to explore ways to enhance chemical security ended the first day's sessions. Panelists discussed upcoming Federal and industry guidance for analyzing and assessing risk and catastrophic emergency preparedness, chemical security enhancement in the context of ISM principles and the need for heightened awareness of the threat of terrorism as a new risk for consideration. Some highlights of the discussions were:

- The right people, including management, must work together to establish what needs to be done and why from the start of any work project. Must break down "stovepipes" and involve all to identify and address the hazards.
- The hazards of both the chemicals and the processes must be understood, and the basics of how chemicals behave must always be primary. To reduce the attractiveness of facilities, we must understand their hazards.
- If a facility needs additional expertise they must get it.
- The industry as a whole is asking if they're doing enough and if regulation the answer.
- CCPS has been looking into the concept and possibility of certification for security vulnerability assessors.
- The roles of the private and public sectors must be addressed in terms of what can be reasonably expected of each.
- For public communications, the question of what level of openness vs. confidentiality is appropriate and necessary must be examined. Some Government websites have been shut down or purged of sensitive information regarding vulnerabilities. All issues of proprietary business information and security haven't yet been aired or fully explored. Must have more dialogue between facilities and first responders and neighborhoods. The release of information must be more carefully considered now along with its impact and the potential consequences of the information getting into the wrong hands. Limited information will be provided by industry – risk communication is the key.
- Must clearly define "public" – only a handful of people may be interested in the details while the larger "public" may be willing to accept less information. Must look for ways to establish a community that enhances security for all.
- The Infrastructure Protection Council has been tracking incidents that have been thwarted. Thus far, not much to indicate that there's a real threat to the chemical industry, though chemical companies with international locations have sustained attacks.
- Lessons learned information on site security must be better shared. Must find a way to balance the sharing of safety information without compromising site security. Balance is possible, but we're just not there yet. For "third party verification" of implementation of security plans, information can be "sanitized".
- Process safety information alone is not enough to do an adequate security vulnerability analysis (SVA) – need both safety and security information for all hazards.
- Multiple stage threats and sequential attacks are being looked at and many scenarios are being examined – must develop methods and models to address these.
- EPA has put out information on reactive chemicals as "Alerts" and has published an "Extremely Hazardous Substances List".

Wednesday, November 6th

Plenary Session: ***Controlling Chemical Hazards: A Risk Management Approach and CSTC 2002/2003 Project Discussions***

Day 2 of the Workshop opened with updates and reviews CSTC Team Projects for 2002. Chairs of the CSTC 2002 Project Teams gave status reports and overviews of their Teams' work for the year and project plans for the 2003 period.

James Goss, of the NNSA at the Y-12 Site Office reported on CSTC Project 2002-B "Integrated Hazards Analysis and a Hazards Identification Toolbox". The project has progressed to the point of finalizing their Handbook, *"Integration of Multiple Hazard Analysis Requirements and Activities"*. This handbook is intended to serve as a guide for hazard analysts and other professionals to integrate the implementation of the various hazard analysis requirements that govern work at DOE. Hazard analysis is required under several regulations and orders covering the areas of emergency management, nuclear safety analysis, chemical process hazard analysis, transportation, environmental impact assessments, etc. Mr. Goss introduced the draft handbook and discussed best practices. The team plans to publish the handbook and to conduct a facility-specific pilot at Y-12 and a site-wide pilot at SRS during 2003.

J.C. Laul, of LANL, chair of the CSTC Project 2002-C Team on "Current Chemical Hazard Characterization Practices in the DOE Complex." This project is based on the finding that no single DOE standard addresses chemical hazards in the way that nuclear hazards are addressed (e.g., in DOE-STD-3009 and 10 CFR 830). The goal of this project is to review sites' existing non-nuclear related documents and analyze them for similarities and differences and missing or undeveloped information, and to develop a model or guidance for performing chemical hazard categorization (CHC) and chemical safety analysis (CSA). The team's template for gathering this information includes three broad areas: Chemical Hazard Category; Hazard Baseline Methodology; and Safety Document requirements including the USQ-like process for non-nuclear facilities. Participating contractors were asked 1) if their site facility's chemical inventory exceeded the levels regulated by 29 CFR 1910. 119 (OSHA's, Process Safety Management standard); and 2) how many of their chemicals, if any, exceeded the threshold quantity levels covered under EPA's 40 CFR 355 TPQ, Appendix A. Eighteen DOE contractors from 16 DOE sites participated in this endeavor. Dr. Laul gave an overview of some of the findings of Phase 1 of this project, noting that some sites have well-developed chemical safety management programs, while others are in early or developmental stages, and that there is no consistency in the sites' approaches to chemical safety analysis. The Phase 1 report is being prepared for review. Phase 2 will summarize the information gathered and develop guidance for performing chemical hazard categorization (CHC) and chemical safety analysis (CSA).

John Piatt, PNNL , Chair of CSTC Project 2002-D: "Chemical Tracking and RF Tags" reported that RF-tags hold great promise for simplifying the inventory and tracking of chemicals. Attendees of the Chemical Management Workshop 2001 selected Chemical Tracking and RF-tags as a CSTC project for 2002. Although a project plan was developed and approved, no funding was obtained to carry out the feasibility and cost-benefit testing needed. The CSTC Project 2002-D Team therefore discontinued work on this project and recommend that sites follow industry validation of RF-tag technology for potential application to chemical inventory and tracking as the technology becomes more available and cost-effective.

Michael Cournoyer, LANL, Chair of CSTC Project 2002-E Team: "Hazardous Material Risk Quantification" reported that this team is compiling a web-based table to promote consistency in chemical hazard identification and hazard severity determination. While this information may be obtained from Material Safety Data Sheets (MSDSs), not all MSDSs fully describe the known hazardous properties of the substance, and some describe hazards that are not attributable to that chemical. The table under development will consist of chemicals used at DOE sites, corresponding Chemical Abstract Service (CAS) Numbers, the chemicals' physical, health, and environmental hazards and hazard severities. With the help of CSTC points of contact for major DOE Laboratories (including LANL, ORNL, INEEL, BNL, PNNL, ANL, and SRS), criteria for identifying hazards and their severity rankings have been compared. Dr. Cournoyer provided an overview of the criteria, the number of labs, and the variety of chemicals this team is addressing.

David Quigley, of the INEEL, chair of the Chemical User Safety and Health Requirements Roadmap (CUSHR) Team, Project 2002-A, gave a brief overview of this project, noting that the project had begun with an assessment of the need for a consolidation of the large number of requirements that govern chemical-related work at the complex since many of these requirements approach chemical safety from different perspectives and contain provisions that overlap or are duplicative. This CSTC project began three years ago when it was realized that there was such a large number of chemical user safety and health requirements that it made it very difficult to understand and follow them all. The goal of this project is to remove overlaps and duplications and to facilitate the understanding of applicable chemical user safety and health requirements. This team has been working to consolidate similar requirements from a variety of sources, provide pointers to those sources, and organize them into a more easily understood format as a series of chapters that mirror the chapters of the DOE Chemical Management Handbook, a CSTC product that was published in November, 2000. Eight of the 10 chapters of consolidated requirements (Hazard Analysis, Acquisition, Inventory and Tracking, Storage, Control of Chemical Hazards, Emergency Management, Disposition, and Training) have been completed and are posted on the Chemical Management web page for DOE-wide review. The last chapters consolidating Federal and DOE chemical user safety and health requirements and relevant National Standards on the subjects of Transportation and Pollution Prevention are nearing completion. The document is expected to be ready for publication by mid-2003.

Discussions of potential CSTC projects for 2003 followed. An announcement was made that a "standing" Beryllium project team will be established at the 2003 CSTC workshop to focus on Beryllium issues, and as such, there will not be a separate Beryllium Workshop in 2003. The preliminary brainstorming discussions of potential CSTC project topics of interest ensued and participants developed a list of 11 topics for consideration as CSTC 2003 projects, including the continuation of on-going 2002 projects. A vote was scheduled to be taken on Thursday, November 7th to select 6 of these topics for CSTC support in 2003.

James Morgan, of the WSRC, Moderated the **Technical Session on "Risk Management Methods and Tools for Controlling Chemical Hazards."**

Adrian Sepeda, an AIChE-CCPS Staff Consultant, provided a training session on "Developing and Using Risk Profiles to Manage Risk." Mr. Sepeda gave an overview of the subject of risk profiles and the value of their use by management to make informed, coordinated business decisions and the allocation of support resources. Facility risk profiles consider four distinct types of risks—Inherent,

Technology, Management Systems, and Discrete Site Specific. A business risk profile combines individual facility risk profiles with others in the same business and adds external concerns and issues. A company risk profile combines business risk profiles and adds overall company concerns and issues. The result is a clear picture of ongoing risks at all levels. Mr. Sepeda discussed a process for developing these risk profiles, and described how the profiles influence the business and financial decision-making processes.

Calvin Jaeger, SNL, provided a training session on "A Vulnerability Assessment Methodology (VAM) for Chemical Facilities." Sandia National Laboratories, under the direction of the Office of Science and Technology, National Institute of Justice, has conducted the Chemical Facility Vulnerability Assessment (CFVA) project. The primary objective of this project has been to develop, test and validate a vulnerability assessment methodology (VAM) for determining the security of chemical facilities (VAM-CF^{SM}) against terrorist or criminal attacks. The project also included a report to the Department of Justice for Congress that, in addition to describing the VAM-CF^{SM} , also addressed general observations related to security practices, threats and risks at chemical facilities and during chemical transport. Sandia disseminated the VAM-CF^{SM} workbook in the summer of 2002. Dr. Jaeger discussed the CFVA project and the VAM-CF^{SM} workbook that's currently being used by many companies and organizations within the chemical/petrochemical industry.

The session on **"Reducing Chemical Use, Waste, Risks and Cost"** began with a presentation by **Geb Marett**, Program Associate of the Chemical Strategies Partnership (CSP) on the "CSP and the Stanford Linear Accelerator (SLAC) Pilot. Mr. Marett noted that the CSP is conducting a pilot program in Silicon Valley to introduce chemical management services (CMS) to three manufacturing companies and one R&D facility. U.S. EPA, Region 9, the Steven and Michele Kirsch Foundation, and the Switzer Foundation are funding the project. CSP collaborated with The Silicon Valley Manufacturing Group and the Santa Clara County Pollution Prevention Program to implement the program. Mr. Marett presented the results from the SLAC pilot, and described how CMS fits into DOE's Integrated Safety Management System requirements. He demonstrated how transforming chemical "supply" vendors into chemical "managers" can help control risks of managing and using chemicals at DOE facilities with examples of CMS program results.

Arnold Edelman, DOE-SC-83, gave an overview of "'The Exchange': A DOE Web-Based Tool for Reducing Waste and Costs." In July 2000, the Secretary of Energy stated that the DOE needs an "expansion of efforts to promote reuse and recycling within the complex of DOE facilities." Mr. Edelman discussed The DOE Materials Exchange Web site as one tool that can help facilitate the reuse/recycling of materials. Many facilities in the DOE complex have their own material exchange systems that include chemicals, equipment, and other materials. However, these systems do not communicate with each other and many have restricted access and do not tie into the DOE excess property system. Mr. Edelman gave an overview of the Exchange Web Site and described how it works and how it complements the excess property system and other systems currently under development (e.g., We Share).

Thursday, November 7, 2002

"Unstable, Reactive and Toxic Chemicals: Controlling the Hazards" and " the CSTC Path Forward for 2003"

The day opened with a **Technical session on "Enhancing Controls for Unstable and Reactive Chemical Hazards"** and a presentation by **James Bailey**, of the Bechtel Jacobs Co./Oak Ridge on "Managing Potentially Shock-Sensitive Legacy Chemicals: An Update on Oak Ridge Chemical Deactivation/Processing Activities." Mr. Bailey described a project on the safe and compliant processing of a backlog of potentially shock sensitive waste chemicals in Oak Ridge. The project managed approximately 600 'deflagrators', 'detonators', and water reactive metal superoxides. As work proceeded on resolving the need for protecting personnel and facilities, several new resources were identified in the commercial sector for predicting energy release mechanisms and within the DOE for predicting the fragment vectors. Mr. Bailey described the project, noting that Unreviewed Safety Question Determinations (USDQs), Safety Evaluation Reports (SERs), evaluations of available standards, evaluations of information and data sources, development and evaluation of deactivation methods, involvement of regulators where permits were needed, and assembly of a team of subject matter experts with experience and capability to perform the work comprised a significant amount of their effort throughout 2002.

Fred Simmons, of the WSRC, provided a presentation on "A Programmatic Approach to Managing Unstable, Reactive and Toxic Chemicals." He noted that the broad scope and large quantities of chemicals used at the Savannah River Site (SRS) present some challenging problems. The methodology employed by SRS is designed to identify and minimize the inherent vulnerabilities (hazards) associated with the storage and handling of these materials prior to their purchase and arrival on-site. He described this methodology, noting that it also provides a mechanism that ensures that all high-hazard chemicals are periodically reevaluated for stability and safety.

Lydia Boada-Clista, DOE Ohio Field Office gave a presentation on the "Identification and Management of Shock Sensitive and Reactive Chemicals." A large number of the more than 60,0000 registered chemicals, chemical trade names, and synonyms in use in the United States today have highly reactive characteristics that may present significant risk to worker health and safety. Ms. Boada-Clista discussed chemical classes and types of peroxidable and explosive chemicals present at DOE facilities and laboratories and described a way to recognize and test for hazardous conditions and good management practices for reducing the risks associated with using these chemicals. She also discussed some treatment and disposal methodologies used and described several chemical disposition case histories from DOE Mound and lessons learned on safety issues and management practices.

John Murphy, of the CSB provided a presentation on "CSB's Reactive Chemical Hazard Investigations – Lessons Learned and Recommendations for Improving Reactive Hazard Management." He noted that CSB's mission is to prevent chemical incidents in commercial or industrial facilities and that Congress also directed the Board to conduct special hazard investigations that encompass analyses of policy, guidelines, regulations and laws governing chemical safety. Mr. Murphy discussed the findings, conclusions, and recommendations of the CSB's recently concluded reactive chemical hazard investigation. The objectives of the investigation were to: (1) determine the impact of reactive chemical incidents; (2) examine how industry, OSHA and EPA address reactive chemical hazards; (3) determine the differences, if any, between large/medium/small companies with regard to reactive chemical policies, practices, in-house reactivity research, testing, and process engineering; and (4) analyze the

appropriateness of, and consider alternatives to, industry and OSHA use of the NFPA reactivity rating system for process safety management.

Scott Berger, AIChE-CCPS, provided a talk on a CCPS project on "A Comprehensive Approach to Managing Reactive Chemical Hazards." The CCPS will soon complete this project which defines a comprehensive approach for managing reactive chemical hazards that builds on reactivity evaluation methods described in an early book, as well as an overview framework published last year and discussed at the November 2001 DOE/EFCOG Joint Chemical Management Workshop. Mr. Berger presented a detailed look into the CCPS perspective on managing reactive chemical hazards.

The CSTC Path Forward for 2003. The afternoon was devoted to a discussion of the potential CSTC projects proposed for 2003 and team building. Items on the list of potential projects developed on Wednesday, November 6th were prioritized and 6 topics were selected from the list for CSTC teams to pursue in 2003. Workshop participants retired to breakout rooms for discussion of the subjects of interest to them. At the succeeding plenary session the team leaders for the 2003 projects reported on their teams' tentative project titles, proposed goals, products and timelines. The CSTC projects selected for 2003 are:

CSTC Project 2003-A "Chemical User Safety and Health Requirements Roadmap" [CUSHR]
[continuation of Project 2002-A]
Team Lead: David Quigley, INEEL [dq1@inel.gov.]

This team will continue consolidating overlapping and duplicative chemical user safety and health requirements. They will complete the final 2 remaining chapters of their intended volume 3 of the Chemical Management Handbook [published in November, 2000 as the product of CSTC Team 2000-B, led by Jim Morgan of the Westinghouse Savannah River Company.] The team expects the entire Volume 3 document to be completed and ready for CSTC review by mid-2003 and published by the end of this FY.

CSTC Project 2003-B "Root Cause Identification and Analysis of DOE Chemical Incidents"
Team Lead: Jim Morgan, WSRC [james.morgan@srs.gov]

This team will analyze available data and determine commonality of incidents and their root causes. The team's first call will be in early January. Billy Lee, DOE HQ support and co-chair of this team, will pull together available data for the team to review. The team will contact the field to get additional information and their goal is to have a complete report ready for presentation at the next CSTC DOE/EFCOG Joint Workshop in the fall of 2003.

CSTC Project 2002-C "Chemical Safety Analysis" [continuation of Project 2002-C, "Current Chemical Hazard Characterization Practices"]
Team Lead: J.C. Laul, LANL [jclaul@lanl.gov]

This team will complete the report of their Phase 1 work from 2002, which will include a description of the information collected with site reports attached as an appendix. Participating sites will be asked to review the report for accuracy. In Phase 2 of this project, the team will review the different

approaches used at the sites and will work with the DOE to identify any recommendations that may be appropriate and produce a guide of best practices for performing chemical safety analysis and chemical hazard identfication.

CSTC Project 2002-D "Methods for Addressing the Hazards of Shock Sensitive, Time Sensitive and Reactive Chemicals"
Team Lead: Helena Whyte, Chair [Whyte_Helena_M@lanl.gov]

This team will research existing policies and procedures for dealing with these materials and will then determine their specific goals and objectives. They will hold their first meeting on December 4th , with subsequent meetings planned for Dec. 11 and Dec. 18 from 3-4 PM EST. They will then meet on the 1st and 3rd Wed of each month. At their first conference call, they plan to scope out their task and determine timelines. They generally expect to collect information on the mitigation projects that have taken place within DOE sites and produce a compendium of best practices.

CSTC Project 2002-E "Minimization of Chemical Exposures During D&D and Closure Operations"
Team Lead: Marco Colalancia, Chair, marco.colalancia@rfets.gov

This team will hold its first two conference calls on Dec. 5 and Dec. 18. The first session will be devoted to brainstorming, after which they will propose a schedule and sketch out all deliverables. Their focus will be on lessons learned for each subject area and they will aim to capture what closure sites have found regarding exposures and D&D to add to the EH published field experience. They will initially work with 5 sites – Fernald, WV, Mound, Rocky Flats and Savannah River. This team's goal is to develop information that will enable the DOE to speed up site closures.

CSTC Project 2002-F "DOE Guide on Integration of Multiple Hazard Analysis Requirements and Activities" [continuation of Project 2002-B, "Hazards Analysis Integration/Hazard Identification Toolbox"]
Team Lead: James Goss, NNSA/DOE Y-12, gossje@yao.doe.gov

This CSTC team plans to publish the Integrated Hazards Analysis Good Practices Guide in the next few months. The draft document is going through the comment resolution process and will be revised to incorporate relevant comments and will then be submitted for publication under the DOE Technical Standards Program. The document will be posted on the Chemical Management web page as a CSTC document for DOE-wide use.

Anyone interested in participating on any of these CSTC 2003 teams may contact the team leads directly by email.

All presentations described above are available at the CSTC section of the chemical management web page at http://tis.eh.doe.gov/web/chem_safety